1. Classification of alcohol with one example each;
2. Alcohols can be classified based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group.

Example: CH3OH Methanol (1­­­o), CH3CH(OH)CH3Propan-2-ol(2o), (CH3)3C-OH 2-Methylpropan-2-ol(3o)

1. Alcohols can be classified based on the number of hydroxyl groups they possess.

Monohydric alcohol: having only one hydroxyl group

Dihydric alcohol: having 2 hydroxyl group (Glycol)

Trihydric alcohol: having 3 hydroxyl group (Triol)

Example: CH3CH2CH2OH Propanol (monohydric alcohol), HOCH2CH2OH Ethane-1,2-diol (Dihydric alcohol), OHCH2CH(OH)CH2OH Propane-1,2,3-triol (Trihydric alcohol)

1. Solubility of Alcohols in water organic solvent.

Alcohols are soluble in water. This is due to the hydroxyl group in the alcohol which is able to form hydrogen bonds with water molecules. Alcohols with a smaller hydrocarbon chain are very soluble. As the length of the hydrocarbon chain increases the solubility in which water decreases.

1. Show the three steps in the industrial manufacture of Ethanols:
2. The starch containing materials include molasses, potatoes, cereals, rice and on warming with malt to 60oC for a specific period of time are converted into maltose by the enzyme diastase contained in the malt.

2(C6H10O5)n + nH2O nC12H22O11

Carbohydrates 60oC/diastase maltose

1. The maltose is broken down into glucose on addition of yeast which contains the enzyme maltase and at a temperature of 15oC. C12H22O6 + H2O 2C6H12O6

C. The glucose at constant temperature of 15oC is then converted into alcohol by the enzyme Zymase contained also in the yeast**. C6H12O6 2CH3CH2OH + 2CO2**

Glucose 15oC/zymase Ethanol

4.





